

What is claimed is:

1. A person recognizing apparatus comprising:
a biometric information input unit to input biometric information of persons subject to recognition;
a registered information memory to store biometric information of persons subject to recognition in advance as registered information;
a recognizer to obtain similarities of biometric information input by the biometric information input unit and registered information stored in the registered information memory by collating both of them and recognize the person based on the obtained similarity; and
a registered information updating unit to judge whether the similarity obtained by the recognizer is within a prescribed updating range and based on being judged as the similarity is within the prescribed updating range, update the registered information stored in the registered information memory by using the biometric information input by the biometric information input unit.
2. The person recognizing apparatus according to claim 1, wherein the registered information updating unit changes a ratio to update the registered information according to a value of corresponding similarity when updating the registered information.
3. The person recognizing apparatus according to claim 1, wherein the registered information updating unit judges whether a difference between plural similarities obtained by the recognizer is more than a prescribed threshold value and based on being judged as the difference between plural similarities is more than the prescribed threshold value, updates the registered information stored in the registered information memory based on the biometric information input by the biometric information input unit.
4. The person recognizing apparatus according to claim 3, wherein the difference between plural similarities is a difference between the highest similarity and the similarity next to it.
5. The person recognizing apparatus according to claim 3, wherein the difference in the plural similarities is a difference between the similarity to the registered information corresponding to identification information of a registered person

- and the highest similarity in similarities to other registered information when the identification information of a person subject to the recognition was input in advance.
- 6. The person recognizing apparatus according to claim 3, wherein the difference in plural similarities is a difference between the similarity to the registered information corresponding to the identification information and an evaluation value obtained by a part of or all similarities to other registered information when the identification information of a person subject to recognition was input in advance.
- 7. The person recognizing apparatus according to claim 1 further comprising:
 - a history information memory to store the biometric information input by the biometric information input unit as the history information; and
 - a tentative registered information preparing unit to prepare tentative registered information by using the biometric information input by the biometric information input unit and the registered information stored in the registered information memory based on completing the recognition by the recognizer;
 - wherein the registered information updating unit obtains the similarity of the tentative registered information with the biometric information obtained in the past and stored in the history information memory, obtains the similarity of the registered information stored in the registered information memory with the biometric information obtained in the past and stored in the history information memory and when a higher similarity is given to the tentative registered information than the registered information stored in the registered information memory, replaces the corresponding registered information stored in the registered information memory to the tentative registered information.
- 8. The person recognizing apparatus according to claim 1, wherein the registered information updating unit includes:
 - a first registered information updating unit to update the registered information stored in the registered information memory based on the biometric information input by the biometric information input unit when a range to update the registered information for the similarity obtained at the time of recognition in the recognizer are preset, a range not update the registered information and a range to check whether the registered information is to be updated or not and the similarity is in the range to

- update the registered information, and when the similarity is in the range not to update the registered information, does not update the registered information and when the similarity is in the range to check later whether the registered information is updated, stores the corresponding biometric information input by the biometric information input unit as the history information; and

a second registered information updating unit to update the registered information stored in the registered information memory based on the biometric information based on checking the biometric information stored by the first registered information updating unit.

9. The person recognizing apparatus according to claim 1, wherein
the recognizer obtains the similarities of the biometric information input by the biometric information input unit and the registered information stored in the registered information memory by collating them and based on the obtained similarities, executes the operation to recognize the person repeatedly until the final recognized result, and

the registered information updating unit judges whether a time until the final recognizing result is obtained by the recognizer or number of recognizing operations becomes higher than the predetermined updating threshold value, and based on it becomes above the updating threshold value, updates the registered information stored in the registered information memory based on the biometric information input by the biometric information input unit.

10. The person recognizing apparatus according to claim 1, wherein the registered information memory pre-stores biometric information of a person subject to recognition with identification information specifying the person added as the registered information and is further equipped with an identification information input unit,

wherein the recognizer obtains the similarity with the registered information corresponding to identification information stored in the registered information memory when the identification information is input in advance by the identification information input unit and recognizes a person as a person corresponding to the identification information when the obtained similarity is higher than a prescribed threshold value,

obtains the similarities with all registered information stored in the registered information memory when identification information was not input in advance by the identification information input unit and recognizes a person as the person corresponding to the identification information when the highest similarity of the obtained similarities is higher than a predetermined threshold value, and

obtains the similarity corresponding to the identification information stored in the registered information memory when identification information that can be partially narrowed down was input by the identification information input unit in advance, and recognizes a person as the said person corresponding to the identification information when the highest similarity of the obtained similarities is higher than a prescribed threshold value.

11. The person recognizing apparatus according to claim 1, wherein the biometric information of the person is at least anyone of face image, fingerprint image, iris image, hand geometry image, finger image, and voice information .

12. A person recognizing method comprising:
inputting biometric information of a person subject to recognition;
obtaining similarities of the input biometric information and the registered information pre-stored in a registered information memory as biometric information of a person subject to recognition by collating them;

recognizing the person based on the obtained similarity;
judging whether the obtained similarity is within the prescribed updating range; and

updating the registered information stored in the registered information memory based on being judged as the similarity is within the prescribed updating range by using the biometric information input in the inputting step.

13. The person recognizing method according to claim 12, wherein
the recognizing step collates the biometric information input in the step to input the biometric information of the person with plural registered information stored in the registered information memory pre-storing biometric information of plural persons subject to recognition,

the person recognizing step obtains plural similarities by the collation and recognizes the person based on the obtained plural similarities,

- the judging steps judges whether a difference among plural similarities obtained in the recognizing step is above the prescribed threshold value, and
- the registered information updating step updates the registered information stored in the registered information memory based on being judged as the difference among plural similarities is above the prescribed threshold value by using the biometric information input in the biometric information inputting step.

14. The person recognizing method according to claim 12 further comprising:

- storing the biometric information input in the biometric information inputting step in a history information memory as history information; and
- preparing tentative registered information based on the biometric information input in the biometric information inputting step and the registered information stored in the registered information memory based on completing the recognition in the recognizing step;

wherein the registered information updating step obtains the similarity of the tentative registered information prepared above with the biometric information obtained in the past and stored in the history information memory, obtains the similarity of the registered information stored in the registered information memory with the similarity of the biometric information obtained in the past and stored in the history information memory and when a high similarity if became to the tentative registered information than the registered information stored in the registered information memory, replaces the corresponding registered information stored in the registered information memory by the tentative registered information.

15. The person recognizing method according to claim 12, wherein

- the recognizing step obtains the similarities of the biometric information input in the biometric information inputting step and the registered information stored in the registered information memory by collating them and executes the operation to recognize the person based on the this obtained similarities repeatedly until the final recognizing result is obtained, and
- the registered information updating step judges a time until the final recognizing result is obtained or the number of recognizing operations becomes more than a prescribed updating threshold value in the recognizing step and based on the number of recognizing becomes more than the threshold value, updates the registered

- information stored in the registered information memory based on the biometric information obtained in the biometric information obtaining step.

16. A passage controller to recognize a passenger and control the passage of the passenger comprising:

- a biometric information input unit to input biometric information of the passenger;
- a registered information memory to store biometric information of a passenger who is preliminary subject to the recognition;
- a recognizer to obtain a similarity of the biometric information input by the biometric information input unit with the registered information stored in the registered information memory by collating them and recognizes the passenger based on the obtained similarity;
- a registered information updating unit to judge whether the similarity obtained by the recognizer is within a prescribed updating range and based on being judged as the similarity is within the prescribed updating range, update the registered information stored in the registered information memory by using the biometric information input by the biometric information input unit; and
- a passage controller to control the passage of the passenger according to the recognized result of the recognizer.

17. The passage controller according to claim 16, wherein

- the recognizer obtains plural similarities of the biometric information input by the biometric information input unit and plural registered information stored in the registered information memory by collating them and recognizes the passenger based on the obtained plural similarities; and
- the registered information updating unit judges whether a difference in plural similarities obtained by the recognizer is above the prescribed threshold value and based on being judged as the difference in the plural similarities is above the prescribed threshold value, updates the registered information stored in the registered information memory based on the biometric information input by the biometric information input unit.

18. The passage controller according to claim 16 further comprising:

- a history information memory storing the biometric information input by the biometric information input unit as history information; and

a tentative registered information preparing unit to prepare tentative registered information based on the registered information input by the biometric information input unit and the registered information stored in the registered information memory after completing the recognition by the recognizer;

wherein the registered information updating unit obtains the similarity of the tentative registered information prepared by the tentative registered information preparing unit with the biometric information obtained in the past and stored in the history information memory, and obtains the similarity of the registered information stored in the registered information memory with the biometric information obtained in the past and stored in the history information memory and when, the similarity of the tentative registered information is higher than the registered information stored in the registered information memory, replace the corresponding registered information stored in the registered information memory with the tentative registered information.

19. The passage controller according to claim 16, wherein

the recognizer obtains the similarity of the biometric information input in the biometric information input unit with the registered information stored in the registered information memory by comparing them and based on the obtained similarity, executes the operation to recognize the person repeatedly until the final recognized result is obtained, and

the registered information updating unit judges whether a time until the final recognized result is obtained by the recognizer or the number of recognized operations becomes above the updating threshold value, and based on being judged as the number of recognized operations becomes above the updating threshold value, updates the registered information stored in the registered information memory based on the biometric information input by the biometric information input unit.

20. The passage controller according to claim 16, wherein the biometric information of the person is at least one of a face image, a fingerprint image, an iris image, a hand geometry image, a finger image and voice information.